

Rayat Shikshan Sanstha's  
**Mahatma Phule Mahavidyalaya, Pimpri, Pune-17**  
**Department of Microbiology**  
**Program Outcome**  
**(PG)**

<b>Name of the Program</b>	<b>Program outcome</b>
M.Sc. (Microbiology)	<p><b>PO-1: Theoretical and practical Knowledge:</b> Application of knowledge of microbial science to resolve critical global issues. Pupil is manifested with a broad range of elements involved in the current industrially and research oriented skills. Students are acquainted with profound understanding involved in manuscript writing, epidemiological models and surveys to enhance the research approach and scientific attitude.</p> <p><b>PO-2: Problem Analysis Approaches:</b> To escalate the prior knowledge and extending it to develop into technology. Students will have better perspective to solve given practical, epidemiological query by logical, statistical and analytical way of approach to retrieve better outcomes using the provided data and the interpretation of the acquired data using statistical tools.</p> <p><b>PO-3: Experimental and Solution Designing Approaches:</b> Number of experiments which involve high order thinking that would aid students to look out for better solution designing, based on the pathways and mechanisms they have been studied, to develop mathematical and statistical approach for solution designing.</p> <p><b>PO-4: Modern tool usage:</b> Students become familiar to use analytical, biophysical, molecular instruments and their precise implementation in various interdisciplinary fields. Associated application of software in research and development sectors, data analysis and molecular experiments.</p> <p><b>PO-5: Scientific writing and Communication Skill:</b> By various means of activities viz. poster presentation, seminar, group discussion and attending conferences it strongly builds individuals' verbal and nonverbal skills. This significantly results in ability to expose diversified conditions and to tackle the problem confidently by interviewing and exchanging the knowledge.</p>

**PO-6: Employability of the Programme:** Polishing the skills needed for sustaining in the challenging world and also improving the better understanding for the incoming demands with respect to the future developmental projects.

**PO-7: Ethical Values:** Developing the sense of ethical values as morals are equally important in development. An individual is filled with prudent point of view towards the societal and other living beings sharing the earth equally to maintain ecosystem and social well-being.

**PO-8: Science for Environmental Sustainability:** Equip students with key responsibility of awareness towards environment. Also understands the micro form of life and their diversity helping in balancing of the ecosystem.

**PO-9: Soft-Skill Development:** Introducing to achieve positive and professional attitude leads to build stronger relationship with co-workers.

**PO-10: Social Awareness:** Creating a sense of responsible citizen which enables one to show empathy towards others from diverse background and also putting a valuable experience in their personality that result in changing the perspective towards society and nature. Make them aware of human rights and cyber security.

**PO-11: Business Skills:** Enabling the students to implement and build their crude ideas into a potential business plan which in return bifurcate the possibility of employment and entrepreneurship.

**PO-12: Life-long learning:** by extending the knowledge and skills which will consciously remain intact and build the values such as competitiveness, motivation and better outlook, adaptability critical thinking, logical reasoning and leadership, professional ethics.

## Program Specific Outcome ( PG)

PSO No.	<b>Program Specific Outcomes (PSOs) Upon completion of this programme the student will be able to</b>
PSO1	<p>Academic competence:</p> <ul style="list-style-type: none"> <li>i) Describe microbial processes that can be used for the development of biochemical and immunological tools to improve the quality of human life.</li> <li>ii) Study the cytology, biochemistry, growth as well as application of environmentally and industrially important microbes with a specific emphasis on improving environmental sustainability and human health.</li> <li>iii) Describe and understand the concepts of role of microorganisms in geochemical processes like leaching of metals and bioremediation methods</li> </ul>
PSO2	<p>Personal and Professional competence:</p> <ul style="list-style-type: none"> <li>i) Apply tools of molecular taxonomy and bioinformatics to the study of diverse microbial groups.</li> <li>ii) Evaluate industrially important microbial products in terms of their purity, safety and ethically acceptable application for the benefit of mankind.</li> <li>iii) Combine public presentation skills of effective articulation and nonverbal communication with a sound understanding of microbial science to effectively communicate ideas</li> </ul>
PSO3	<p>Research competence:</p> <ul style="list-style-type: none"> <li>i) Validate scientific hypothesis and editorialize experimental scientific data by using statistical tools applicable to biological sciences.</li> <li>ii) Integrate principles of biology and physical sciences to standardize detection and quantification methods using sophisticated techniques.</li> </ul>

PSO4	<p>Entrepreneurial and Social Competence:</p> <ul style="list-style-type: none"><li>i) Employ skill sets related to Quality assurance and testing of pharmaceutically important products in accordance with internationally accepted standards.</li><li>ii) Evaluate the importance of new groups of consumer goods such as prebiotics, probiotics and nutraceuticals.</li><li>iii) Apply the concepts of microbial interactions in basic and advanced treatment of waste water treatment processes.</li></ul>
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